

Docket No. 520.43302PX1
Serial No. 10/724,750
Office Action dated April 6, 2006

REMARKS

I. Introduction

By the present Amendment, claims 1 and 4 have amended, and claims 6 and 7 canceled. Claims 8-13 are newly presented for consideration. Accordingly, claims 1, 2, 4, 5, and 8-13 are now pending in the application. Claims 1 and 4 are independent.

II. Office Action Summary

In the Office Action of April 6, 2006, claims 1, 2, and 4-7 were rejected under 35 UC §102(b) as being anticipated by U.S. Patent No. 5,463,459 issued to Morioka et al. ("Morioka"). This rejection is respectfully traversed.

III. Rejections under 35 USC §102

The Office Action rejects claims 1, 2, and 4-7 as being anticipated by Morioka. Regarding this rejection, the Office Action alleges that Morioka discloses a method for inspecting defects that comprises all of the steps recited in independent claim 1. For example, the Office Action indicates that Morioka discloses illuminating a light to an inspection object containing repetitive circuit patterns formed on a surface, detecting an image signal corresponding to transmission light by selectively shielding a diffraction light pattern generated from the repetitive circuit patterns when the illuminating light is reflected from the surface of the inspection object, and detecting defects on the surface of the inspection object by processing the detected image signal. The Office Action further alleges that Morioka discloses selective shielding of the diffraction light pattern in the detecting step by means of a substrate or film which is etched so as to leave shielding patterns.

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As amended, however, Independent claim 1 discloses features that are not shown or suggested by the art of record. Independent claim 1 defines a method for inspecting defects that comprises the steps:

- illuminating light to an inspection object containing repetitive circuit patterns formed on a surface thereof;
- detecting an image signal corresponding to transmission light by selectively shielding a diffraction light pattern generated from said repetitive circuit patterns when the illuminating light is reflected from the surface of said inspection object; and
- detecting the defects existing on the surface of the inspection object by processing the detected image signal;

wherein said selective shielding of said diffraction light pattern in said detecting step is performed by using a micro-mirror array device.

According to the inspection method of claim 1, light is illuminated onto an inspection object that contains repetitive circuit patterns formed on a surface thereof. An image signal corresponding to transmission light is detected by selectively shielding a diffraction light pattern generated from the repetitive circuit patterns. The diffraction light pattern occurs when the illuminating light is reflected from the surface of the inspection object. The detected image signal is then processed in order to detect defects that exist on the surface of the inspection object. In particular, the diffraction light pattern is selectively shielded using a micro-mirror array device.

The Office Action indicates that Morioka discloses the features recited in independent claim 1. Applicants' review of Morioka has not revealed any disclosure or suggestion for certain features recited in independent claim 1. For example, Morioka does not appear to disclose the use of a micro-mirror array device to selectively shield the diffraction light pattern. Further, the Office Action does not place reliance on this particular feature. Rather, it appears that Morioka discloses the use of a substrate or film which is etched to leave shielding patterns. Applicants have amended independent claim 1 to better clarify the invention by specifying that a

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micro-mirror array device is used to selectively shield the diffraction light pattern.

This particular feature does not appear to be disclosed by Morioka.

It is therefore respectfully submitted that independent claim 1 is allowable over the art of record.

Claims 2 and 8-10 depend, either directly or indirectly, from independent claim 1, and are therefore believed to be allowable for at least the reasons set forth above with respect to independent claim 1. In addition, these claims introduce novel elements that independently render them patentable over the art of record.

As amended, independent claim 4 defines an apparatus for inspecting defects that comprises:

- an illumination optical system which illuminates light to an inspection object containing repetitive circuit patterns formed on a surface thereof;
- an optical detection system which detects light reflected from said inspection object and transmitted through a shield unit, and converts the detected light into an image signal; and
- a processing system which detects the defects by processing the image signal detected by said optical detection system;

wherein said shield unit is provided in said optical detection system to selectively shield diffracted light patterns coming from the repetitive circuit patterns existing on the inspection object, and said shielding unit comprises a micro-mirror array device.

According to the apparatus of claim 4, an illumination optical system illuminates light onto an inspection object that contains repetitive circuit patterns. An optical detection system is used to detect light reflected from the inspection object and transmitted through a shield. The optical detection system also converts the detected light into an image signal. A processing system is then used to detect the defects by processing the image signal detected by the optical detection system. Similar to independent claim 1, diffracted light patterns coming from the repetitive circuit patterns formed on the inspection object are selectively shielded using a

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micro-mirror array device . As previously discussed with respect to independent claim 1, this particular feature is not disclosed by Morioka.

It is therefore respectfully submitted that independent claim 4 is allowable over the art of record.

Claims 5 and 11-13 depend, either directly or indirectly, from independent claim 4, and are therefore believed allowable for at least the reasons set forth above with respect to independent claim 4. In addition, these claims each introduce novel elements that independently render them patentable over the art of record.

IV. Conclusion

For the reasons stated above, it is respectfully submitted that all of the pending claims are now in condition for allowance. Therefore, the issuance of a Notice of Allowance is believed in order, and courteously solicited.


If the Examiner believes that there are any matters which can be resolved by way of either a personal or telephone interview, the Examiner is invited to contact Applicants' undersigned attorney at the number indicated below.

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AUTHORIZATION

Applicants request any shortage or excess in fees in connection with the filing of this paper, including extension of time fees, and for which no other form of payment is offered, be charged or credited to Deposit Account No. 01-2135 (Case: 520.43302PX1).

Respectfully submitted,
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